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Agriculture

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Swine Facts

Avoiding Drug Residues in Pork

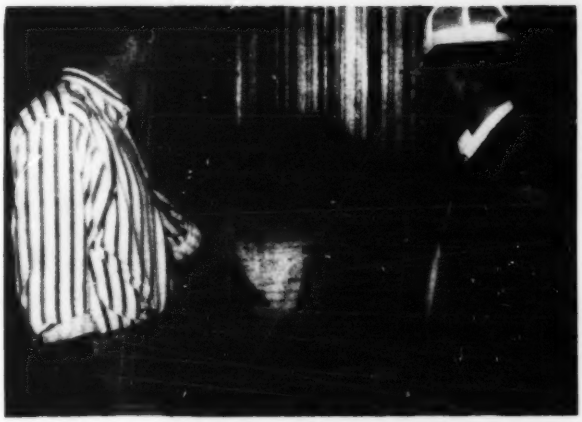
The value of feed additives in swine production is well recognized. The fact sheets "Feed Additives for Swine" and "Approved Medications for Use in Swine" describe in detail the use of commonly used feed additives. Through simple negligence or accident, feed additives can sometimes be found in pork meat supplies. When feed additives are found, they are termed drug residues.

Drug Residue Problems

Drug residues in pork can cause several human health problems. Some individuals may be sensitive to even small amounts of drug residues. Small amounts of drugs can also lead to problems of bacteria resistance when treating human diseases.

Although the actual risk to the public from drug residues may be low, producers cannot become lax in observing the procedures required to avoid residues. Consumers have a right to expect that pork products are produced under sanitary conditions and are residue-free.

Manitoba pork is marketed worldwide and potential buyers reserve the right to test incoming pork for drug residues. When residues are found in violation of their regulations, buyers can reject these imports even when they have passed Canadian inspection. If the industry wishes to maintain or expand these export markets, producers must ensure their pork is free of drug residues. The primary responsibility for residue-free pork is thus with the producer.



Instructions to the swine producer are important. Read all directions carefully before use.

Sources of Drug Residues in Pork

Medicated feeds (both commercial and on-farm mixes), medicated water and drug injections are the major sources of drug residues in swine. Problems can result if proper precautions are not observed.

Regardless of the source, human error is the most common cause of drug residues. These errors can result from either ignorance or willful disregard of correct procedure.

Medications must be used according to instructions and only for the intended class of pigs and purposes indicated. Required withdrawal periods for each feed additive or drug must also be observed.

Handling of feeds during mixing and feeding can result in drug residues if proper precautions are not taken to prevent cross contamination between lots of feed.

Some drugs, such as sulfamethazine, are excreted unchanged. This is important when market pigs are allowed access to feces containing drug residues from treated pigs.

Increased reliance on the use of drugs has led many producers to become lax in the basic principles of disease prevention. Widespread drug use also increases the possibility for error through negligence by producers.

Control of Veterinary Drugs and Feed Additives

All veterinary drugs sold in Canada must be approved by the Bureau of Veterinary Medicine. Before a drug can be given approval, it must meet criteria for safety, effectiveness and compatibility. Information relating to the use, claims and withdrawal periods in animals is also required as part of the label.

Medications used as feed additives must be approved by the Plant Products Division. The proper use of feed additives in animal diets is outlined in the "Compendium of Medicating Ingredients Brochure." This brochure serves as a guide for the preparation and labelling of medicated feeds in animals. The brochure is part of the regulations under the Feeds Act (1976) and the Feeds Regulations (1983). It applies to on-farm mixed feeds in addition to commercially prepared feeds.

Monitoring Drug Residues in Pork Carcasses

Veterinary inspection of all meat products and meat handling facilities is performed by the Food Production and Inspection Branch of Agriculture Canada. Disease and pathological conditions in swine carcasses and meat handling in the processing facility receive the most attention from the veterinary inspection. In addition, there is increasing consumer concern for the safety and wholesomeness of pork products. Drug residues are an example of this concern.

The branch monitors pork products for the presence of drug residues. Because of the large number of animals processed in an abattoir, it is impossible to check all carcasses. For example in the sulfonamide monitoring program, sufficient samples are randomly collected to detect a 1% violation for residue. The number of random samples collected is increased whenever violations are found or when there is reason to suspect violations. In swine there is particular concern for sulfamethazine, as well as carbadox and tetracycline residues in pork.

Since drug residue testing requires considerable time and expense, only a limited number of carcasses can be tested. It is possible for pork with drug residues from one producer to pass inspection for a considerable period of time undetected. When foreign buyers detect drug residues in pork products, our entire export market is placed in jeopardy. All producers have a responsibility to ensure their products are free from offending residues.

Allowable levels for drug residues vary from country to country and can change with time. The most important thing to know is that by carefully following the recommendations for the use of each drug, residues can be avoided.

Enforcement Procedures for Residue Violations

When a drug residue such as sulfamethazine is detected in the monitoring process in the abattoir, the farm of origin is visited by an inspector from the Plant Products Directorate. The inspector will investigate the production unit, determine the drug residue source and provide recommendations to correct the problem.

The next hog shipment is subject to pre-testing. Five hogs are sent to slaughter not sooner than ten days after the first hogs were found with a sulfonamide residue. They are sampled and the carcasses are held in frozen storage pending the results of the tests.

If the pre-test hogs are positive the affected carcasses are condemned. The pre-test procedure will be repeated ten days later with another five hogs until the results are negative. Liver and carcass samples must be negative before the producer is allowed to resume normal shipments of hogs to slaughter.

After a producer has been allowed to resume normal shipments, additional check samples will be taken from production lots to ensure the product is negative. In addition, whenever there is reasonable doubt of a hog producer's adherence to proper procedure, samples may be taken at the discretion of inspection or headquarters staff.

The names of the producers associated with violation levels of drug residues are circulated to the federal government's regional veterinarians and hog marketing boards. Both liver and carcass samples must be negative before their names are removed from this list.

Avoiding Residues in Pork

All producers, feed manufacturers, veterinarians and drug manufacturers have a role to play in the prevention of drug residues.

Residue prevention is based on obvious and simple rules.

1. Rely on good management to reduce drug or medication use. Provide animals with clean, dry bedding, good ventilation and balanced nutrition. Help them avoid stress.
2. Use specific medication for specific problems. Avoid "shotgun" treatment.
3. Read and follow label instructions. Do not rely on memory for proper dosages and withdrawal times. List drugs with their withdrawal times as a handy reference.
4. Review drug usage with your veterinarian or extension service. Can drug usage be reduced or eliminated?
5. If you are unsure whether a withdrawal time is sufficient because of a special application of medication or treatment, consult with your veterinarian or extension service.
6. Keep a record of treatment. Some withdrawal times are long, e.g. 35 days for carbodox in swine, and are easily forgotten. Market animals for slaughter only at the end of the withdrawal time.
7. To ensure uniform disbursement, blend concentrated medications into soybean meal or supplement prior to adding to the main mix, or have your feed supplier supply a medicated premix or supplement.

Calibrate on-farm mixing equipment carefully to avoid residue problems.

On-farm and commercially produced feeds are subject to the same regulation.

8. Weigh ingredients accurately for medicated feeds and/or water. Calibrate scales and volumetric containers regularly.
9. Make one person responsible for adding medicated pre-mixes.
10. Establish a sequencing pattern. After making all medicated feeds, mix and grind non-medicated flush feeds that are to be fed to non-marketable animals. Make withdrawal feeds last.
11. Prevent non-medicated feeds from becoming contaminated with medicated ones. Check your own and your feed supplier's practices. Avoid using one feeding cart for both medicated and non-medicated feed. Use separate waterlines for medicated and non-medicated water, if possible. Insist on clean delivery trucks.
12. Clean storage bins, feeding troughs and other equipment when switching from medicated to non-medicated feeds.
13. Avoid recycling of manure in finisher areas. Finishing pigs should not have access to manure from medicated pigs. The use of sulfamethazine in grower rations should be avoided, especially where medicated pigs and market weight pigs are housed in the same facility. Before transferring market weight pigs to a pen previously occupied by treated pigs, be sure the pen has been meticulously cleaned.
14. Keep feed samples for analysis in case problems arise. This will provide a sample for analysis to determine how to avoid the problem in future.
15. Sows that may have had access to medicated feeds should be held for the required withdrawal time prior to shipping. If it is impractical to clean the area, the animals involved may be moved to a clean pen 48 hours after removal of medicated feed. This will prevent cross-contamination from feces, urine, and/or bedding.

Conclusion

With increasing public demand for safe and wholesome pork products, there will be greater pressure on regulatory agencies to increase their surveillance for drug residues. Producers, manufacturers and veterinarians must all address this issue.

For further information on any aspect of drug usage or residues, contact the Veterinary Inspection Directorate. The Veterinary Inspection Directorate has district offices in Boissevain, Brandon, Carman, Dauphin, Emerson, Minnedosa, Swan River and Winnipeg. The Manitoba regional office is at Room 613-269 Main Street, Winnipeg, Manitoba R3C 1B2. Tele-phone: (204) 983-2200.

Informational brochures relating to drug residues can be obtained through the district offices of the Veterinary Inspection Directorate or by writing to the Communications Branch, Agriculture Canada, Ottawa, Ontario K1A 0C7.

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